





**KBD4002
Genex[®] Multiplexer
Keyboard**

**Installation/
Operation Manual**

C581M-B (1/04)

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IMPORTANT SAFEGUARDS AND WARNINGS

Prior to installation and use of this product, the following WARNINGS should be observed.

1. Installation and servicing should only be done by qualified service personnel and conform to all local codes.
2. Unless the unit is specifically marked as a NEMA Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosure, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
3. Only use replacement parts recommended by Pelco.
4. After replacement/repair of this unit's electrical components, conduct a resistance measurement between line and exposed parts to verify the exposed parts have not been connected to line circuitry.

The product and/or manual may bear the following marks:



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

CAUTION:
RISK OF ELECTRIC SHOCK. DO NOT OPEN.

Please thoroughly familiarize yourself with the information in this manual prior to installation and operation.

REGULATORY NOTICES

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

DESCRIPTION

The KBD4002 Genex® Multiplexer Keyboard is a full-function keyboard controller for the Genex MX4000 Multiplexer and the Genex MX4000SVR Multiplexer Server.

This manual covers the KBD4002 keyboard's operation with the duplex and simplex models of the multiplexer. The differences, as they pertain to the keyboard, will be indicated in the text and art wherever necessary.

There are two modes of operation - multiplexer mode and multiplexer server mode—depending on whether the keyboard is connected to a multiplexer or to a server.

In the multiplexer mode, a single keyboard interfaces up to 16 multiplexers that are daisy-chained together. With 9-channel multiplexers, the keyboard can control up to 144 cameras; with 16-channel multiplexers, up to 256 cameras can be controlled.

In the multiplexer server mode, up to four keyboards can be connected to a server, which interfaces up to eight multiplexers. Up to 72 cameras can be controlled with 9-channel multiplexers or 128 cameras with 16-channel multiplexers.

In addition to performing all the control functions that can be done from the front panel of the multiplexer, the keyboard features additional keys for full control of fixed speed and variable speed pan, tilt, and lens functions. Variable speed control is accomplished with the number keypad using the "select-a-speed" feature. With select-a-speed, each digit (1-9) represents a relative pan and tilt speed. The number 1 represents the slowest speed available while the number 9 speed equates to turbo pan (for those receivers capable of supporting turbo pan speed). When the number 9 is entered, the tilt will operate at the number 8 speed. Entering the number 0 sets a mid-range speed. The keyboard can also operate presets, auxiliaries, and patterns and can be used to program the multiplexer or server.

INSTALLATION

NOTE: The KBD4002 keyboard in combination with a Genex multiplexer provides Coaxitron® control of pan, tilt, and lens functions.

When used with 15-bit standard Coaxitron receivers, such as the CX9000 Series, the PT7700, and the ED25/27/28/29, the KBD4002 in conjunction with the multiplexer supports all pan, tilt, and lens functions, and AUX on/off. The keyboard will not set or call presets or support preset scanning.

When used with 32-bit extended Coaxitron receivers, such as Esprit®, Intercept®, Spectra®, and LRD41C21/LRD41C22 Series, the KBD4002 in conjunction with the multiplexer will support all the functions of a 15-bit receiver, including the setting and calling of presets and patterns. It will not support programming of labels for presets or patterns. If labels for presets or patterns are required, they would need to be programmed with a different control, such as the MPT9500.

The following parts are supplied:

- 1 KBD4002 keyboard
- 1 25-foot (7.6 m) data cable

There are two modes of operation—multiplexer mode and multiplexer server mode—depending on whether the keyboard is connected to a multiplexer or to a server.

In the multiplexer mode, a single keyboard is plugged into the back of a Genex MX4000 Multiplexer.

In the multiplexer server mode, up to four keyboards can be connected to the back of a Genex MX4000SVR Multiplexer Server. A KBDKIT(-X) is required for each keyboard connected to the remote keyboard port.

Proceed to the *Multiplexer Mode Installation* or *Multiplexer Server Mode Installation* section.

MULTIPLEXER MODE INSTALLATION

1. Remove the DIP switch cover plate from the rear of the keyboard (refer to Figure 1).
2. Set the switches (refer to Figure 1 for switch locations).

ADDRESS

Set switches 1, 2, and 3 OFF. This is address 0, which selects the multiplexer mode of operation.

COMMUNICATION MODE

Set switch 4 OFF to enable the polled communication mode. Use this for normal keyboard operation.

Set switch 4 ON to put the keyboard in the non-polled communication mode. Use this when the keyboard communicates remotely over communications media that will not support the polled mode. This is any communications media that introduces a significant delay in the transmission of data (for example, phone line transmission systems). In the non-polled mode, the keyboard can be used to control multiplexer(s) only. The non-polled mode is not supported by the multiplexer server.

UNUSED

Leave switch 5 OFF. It is not used.

TURBO MODE

Set switch 6 ON to enable the turbo pan feature. Set the switch OFF to disable the turbo pan feature.

CAMERA ADDRESS MODE

There are two modes for addressing cameras: by addressing all the cameras consecutively from 1-256 (refer to Table C) or by addressing the cameras in groups of 16 according to the multiplexer they are connected to. For example, multiplexer 1, cameras 1-16; multiplexer 2, cameras 1-16, etc.

Set switch 7 ON if you want to address all cameras consecutively.

Set switch 7 OFF if you want to address cameras according to the multiplexer they are connected to.

PROGRAMMING MODE

Set switch 8 ON to program the multiplexer and camera presets and patterns from the keyboard. Set the switch OFF to disable programming.

NOTE: For distances over 25 feet (7.6 m), you **must** order the KBDKIT(-X) Remote Keyboard Wiring Kit. Refer to the KBDKIT(-X) manual for installation procedures.

3. Replace the cover on the back of the keyboard.
4. A 25-foot (7.6 m) data cable with RJ-45 connectors is supplied with the keyboard. Plug one end of the cable into the back of the keyboard and plug the other end into the COM IN connector on the back of the multiplexer.

The keyboard receives power from the multiplexer. The LED display will light momentarily when the keyboard receives power. The LED will stay on when you enter a multiplexer address.

5. Peel off the protective covering over the LED display in the upper left corner of the keyboard.

MULTIPLEXER SERVER MODE INSTALLATION

NOTE: If the keyboard will be connected to a server that will operate in the paired mode configuration, only addresses 1 and 3 can be used. Refer to the server manual for information about the paired mode configuration.

1. Remove the DIP switch cover plate from the rear of the keyboard (refer to Figure 1).
2. Set the switches (refer to Figure 1 for switch locations).

ADDRESS

Refer to Table A to set the address of the keyboard.

Table A. Keyboard Addresses

Keyboard Address	Switch Settings		
	1	2	3
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON

UNUSED

Switches 4 and 5 are not used in the multiplexer server mode. They must be placed in the OFF position.

TURBO MODE

Set switch 6 ON to enable the turbo pan feature. Set the switch OFF to disable the turbo pan feature.

CAMERA ADDRESS MODE

There are two modes for addressing cameras: by addressing all the cameras consecutively from 1-256 (refer to Table C) or by addressing the cameras in groups of 16 according to the multiplexer they are connected to; for example, multiplexer 1, cameras 1-16; multiplexer 2, cameras 1-16, etc.

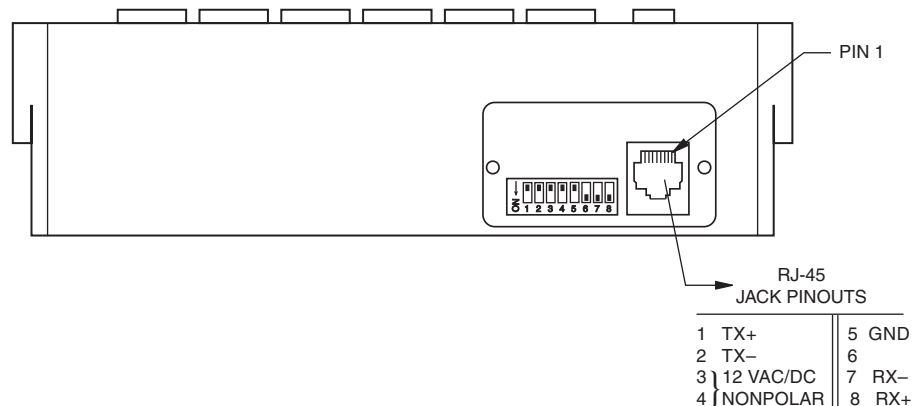


Figure 1. Switch Locations and RJ-45 Jack Pinouts

Set switch 7 ON if you want to address all cameras consecutively.

Set switch 7 OFF if you want to address cameras according to the multiplexer they are connected to.

PROGRAMMING MODE

Set switch 8 ON to program the server and the multiplexer. Set the switch OFF to disable programming.

3. Replace the cover on the back of the keyboard.
4. Connect the keyboard to the MX4000SVR Multiplexer Server. A maximum of four keyboards can be connected to the server. One keyboard can be connected to the LOCAL KEYBOARD port on the server, and up to three keyboards can be connected to the REMOTE KEYBOARD(S) port on the server. Or four keyboards can be connected to the remote.

LOCAL KEYBOARD PORT

To connect the keyboard to the LOCAL KEYBOARD port, a 25-foot (7.6 m) data cable with RJ-45 connectors is supplied with the keyboard. Plug one end of the cable into the back of the keyboard and plug the other end into the LOCAL KEYBOARD port on the server. Refer to the multiplexer server manual for instructions.

The keyboard receives power from the multiplexer. The LED display will light when the keyboard receives power. The display will show the address of the multiplexer with which the keyboard is communicating.

REMOTE KEYBOARD(S) PORT

To connect a keyboard(s) to the REMOTE KEYBOARD(S) port on the server you must order a KBDKIT(-X) for each keyboard. Follow the instructions that are supplied with the kit. Refer to Figure 1 for the keyboard RJ-45 pin-outs.

The keyboard receives power from the transformer. The LED display will light when the keyboard receives power. The display will show the address of the multiplexer with which the keyboard is communicating.

5. Peel off the protective covering over the LED display in the upper left corner of the keyboard.

OPERATION



IMPORTANT NOTE ABOUT PROGRAMMING

When the keyboard is plugged into a multiplexer or multiplexer server, the keyboard is ready to operate. **However, some minimal programming may be required to make your system work.**

MULTIPLEXER

The default settings for the duplex and simplex multiplexers are not the same, and it should not be assumed that there is nothing more to do after connecting the keyboard to the system. Below are the minimum things to check.

1. To allow the keyboard to communicate with multiplexers in the **polled mode** (switch 4 OFF), you must designate one multiplexer (any one) as the master and all the others as slaves. If you have just one multiplexer, it must be the master. In the **non-polled** communication mode (switch 4 ON), all multiplexers must be slaves (the keyboard is the master).

Set the master/slave designation from the front panel of the multiplexer, not from the keyboard. Go to the Advanced System Setup menu (refer to multiplexer manual) and select master or slave in the COMM. TYPE menu item. The default is SLAVE for duplex multiplexers and MASTER (KBD T/D) for simplex multiplexers.

2. If you have more than one multiplexer, each one must have its own address (Unit ID in the Advanced System Setup menu). If you have a server, the multiplexer address must match the input on the server to which it is connected; for example, if the multiplexer is connected to input 3 on the server, set the multiplexer address to 3. **Set the address from the front panel of the multiplexer, not from the keyboard.**
3. If you have moveable cameras (they must be Coaxitron compatible), you must program the Coaxitron format for each camera (Camera menu). The duplex multiplexer COAXITRON FORMAT default setting is OFF, while the simplex default setting is EXTENDED. Programming can be done from the front panel of the multiplexer or from the keyboard (refer to the *Programming* section for keyboard instructions).

MULTIPLEXER SERVER

Below is the minimum you should check.

If you intend to control two monitors from one keyboard (paired mode), you must change the settings for the monitors (Monitor menu). Programming the server **can only** be done from the keyboard. Refer to the server manual for instructions.

IMPORTANT NOTE ABOUT COAXITRON CONTROL OF CAMERAS

The KBD4002 keyboard provides Coaxitron control of pan, tilt, and lens functions.

The **duplex** multiplexer COAXITRON FORMAT (refer to the *Camera Setup* section) default setting is **OFF** and must be changed in order to use Coaxitron control. The **simplex** multiplexer default setting is **EXTENDED** and 32-bit Coaxitron control can be used without changing the setting.

When used with 15-bit standard Coaxitron receivers, such as the CX9000 Series, the PT7700, and the ED25/27/28/29, the KBD4002 supports all pan, tilt, and lens functions, and AUX on/off. The keyboard will not set or call presets or support preset scanning.

When used with 32-bit extended Coaxitron receivers, such as Esprit, Intercept, Spectra, and LRD41C21/LRD41C22 Series, the KBD4002 will support all the functions above, including the setting and calling of presets and patterns. It will not support programming of preset or pattern labels. If labels for presets or patterns are required, they would need to be programmed with a different control, such as the MPT9500.

IMPORTANT NOTE ABOUT DIFFERENCES IN SIMPLEX AND DUPLEX MULTIPLEXER MODES OF OPERATION

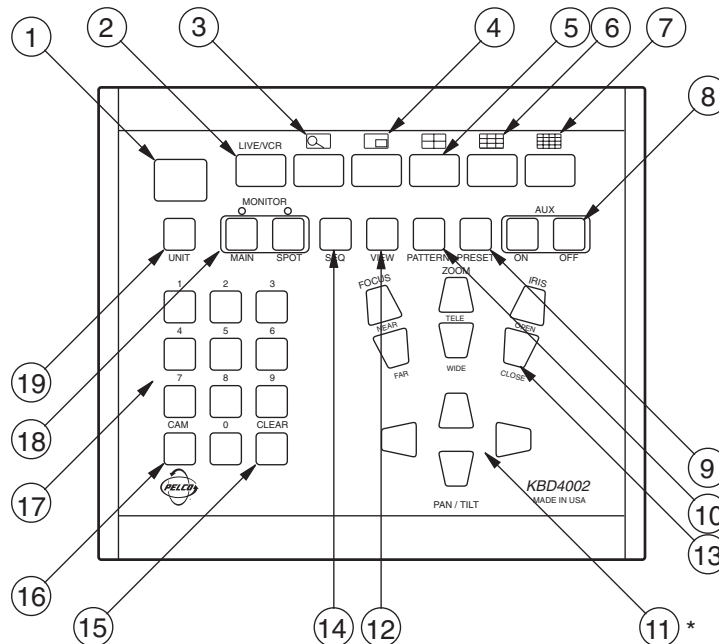
The **simplex** multiplexer has three modes of operation: live, VCR, and record.

- In the live mode, the main monitor can show live video both in full-screen or multiple-screen views. You cannot record in the live mode. The multiplexer's DISPLAY/RECORD LED is OFF.
- In the VCR mode, the main monitor will show full-screen or multiple-screen views of videotape playback. You cannot record in the VCR mode. The multiplexer's DISPLAY/RECORD LED is OFF.
- In the record mode, the main monitor will show live video of an individual camera in full-screen view only. You can record only when in the record mode. While recording, all cameras are being recorded simultaneously. The multiplexer's DISPLAY/RECORD LED is ON.

The **duplex** multiplexer has two modes of operation: live and VCR.

- In the live mode, the main monitor will show live video both in full-screen or multiple-screen views. You can record while in this mode. The multiplexer's LIVE/VCR LED is ON.
- In the VCR mode, the main monitor will show full-screen or multiple-screen views of videotape playback. You can record in the VCR mode if you have a second VCR connected to the VCR OUT jack on the multiplexer. The multiplexer's LIVE/VCR LED is OFF.





For complete instructions on how to use the keys, refer to Table B, Operation Guide.

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. LED DISPLAY Displays the address of the multiplexer (from 1-16) with which the keyboard is communicating. 2. LIVE/VCR KEY Selects the source of video to display on the monitor(s). LIVE is live video from the cameras. VCR is recorded video that is played back from a VCR.

The simplex multiplexer must be in the record mode to record video. Check the main monitor screen to see that it indicates REC. Press the LIVE/VCR key to change modes. 3. ZOOM KEY Zooms in (2X or 4X) on the displayed camera. Use the pan/tilt keys to control the zoom location. 4. PIP KEY Displays on the main monitor a picture-in-picture insert on top of the full-screen display. 5. FOUR-CAMERA DISPLAY KEY Press once to display a group of four cameras on the main monitor. Repeat pressing to display other groups. 6. NINE-CAMERA DISPLAY KEY Press once to display a group of nine cameras on the main monitor. Press again to display second group. 7. 16-CAMERA DISPLAY KEY Press once to display all 16 cameras on the main monitor. 8. AUXILIARY KEYS Turn receiver auxiliary functions on and off. 9. PRESET KEY Sends a camera to a preset: Enter the preset number and then press this key. Also is used for programming presets. | <ol style="list-style-type: none"> 10. PATTERN KEY Press to begin a pattern. Also is used to program a pattern. 11. PAN/TILT KEYS Provide motion control to receiver and are used to navigate through the multiplexer programming menus. Variable speed control is accomplished with the number keypad using the "select-a-speed" feature. With select-a-speed, each digit (1-9) represents a relative pan and tilt speed. The number 1 represents the slowest speed available while the number 9 speed equates to turbo pan* (for those receivers capable of supporting turbo pan speed). When the number 9 is entered, the tilt will operate at the number 8 speed. Entering the number 0 sets a mid-range speed. 12. VIEW KEY Press to enter program mode for multiplexer/multiplexer server. 13. LENS CONTROL KEYS Control camera lens functions: focus, iris and zoom. 14. SEQ KEY Starts/stops a sequence. 15. CLEAR KEY Press to clear a numeric entry. 16. CAM KEY Selects a camera: Enter the camera number and then press this key. 17. NUMBER PAD Enter numbers. 18. MONITOR KEYS Select the main or spot monitor for viewing individual cameras. A green LED above each key indicates which monitor is selected. 19. UNIT KEY Selects the multiplexer with which the keyboard communicates: Enter the address of the multiplexer (1-16) and then press this key. |
|---|--|

Figure 2. KBD4002 Keyboard Definitions

Table B. Operation Guide

NOTE: References to switch 7 in this table refer to the switch behind the panel on the back of the keyboard. There are two modes for addressing cameras: by addressing all the cameras consecutively from 1-256 (switch 7 ON, refer to Table C) or by addressing the cameras in groups of 9 or 16 according to the multiplexer they are connected to (switch 7 OFF); for example, multiplexer 1, cameras 1-9 or 1-16; multiplexer 2, cameras 1-9 or 1-16, etc.

OPERATION	KEYBOARD COMMAND	RESULT
Use the “select-a-speed” feature to operate pan and tilt units with variable speed.	Enter a number, 1-9, from the number keypad followed by one of the pan/tilt keys. Each number represents a relative pan and tilt speed with number 9 equaling turbo pan speed (on equipped receivers) and number 1 equaling crawl speed (the slowest speed). When the number 9 is entered, the tilt will operate at the number 8 speed. Entering the number 0 sets a mid-range speed.	The speed that is selected will remain in memory until it is changed.
Call a camera to the MAIN monitor.	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers. 3. Press the LIVE/VCR key to select the mode of operation. 	Stops a sequence if one is in progress. Displays the camera on the MAIN monitor.
Call a camera to the SPOT monitor.	<ol style="list-style-type: none"> 1. Press the SPOT MONITOR key. The green LED over the SPOT key lights. 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers. 	Displays the camera on the SPOT monitor.

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
Set main tracking.	<ol style="list-style-type: none"> 1. Go to the Advanced System Setup menu. 2. Press the pan/tilt keys so the cursor highlights SPOT MONITOR DISPLAY items. 3. Press the OPEN key until TRACK MAIN is displayed. 4. Exit the Advanced System Setup menu. 	<p>Spot monitor follows the camera switching that occurs on the main monitor in single screen mode. In multi-screen mode, the spot monitor switches to camera 1.</p> <p>Allows only P/T/Z control while in main monitor mode. Press the SPOT key to have presets and patterns while in this mode.</p>
Exit main tracking.	<ol style="list-style-type: none"> 1. Go to the Advanced System Setup menu. 2. Press the pan/tilt keys so the cursor highlights SPOT MONITOR DISPLAY items. 3. Press the OPEN key until either SEQUENCE or BLANK is displayed. 4. Exit the Advanced System Setup menu. 	Exits main tracking mode.
Call a group of cameras to the MAIN monitor.	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. 3. Press the key below the 4, 9, or 16 icon. 4. Repeat pressing the key until the correct group is displayed (4 or 9 only). 5. Press the LIVE/VCR key to select the mode of operation. 	Displays the group of cameras on the MAIN monitor.

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
<p>Display a picture-in-picture (PIP) insert on the MAIN monitor.</p>	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. Select the camera that you want to display full size. <ul style="list-style-type: none"> Addressing by Multiplexer (Switch 7 OFF) <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. Addressing Consecutively (Switch 7 ON) <p>On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. Make sure the main monitor displays live video. If the video is not live, press the LIVE/VCR key. 4. Press the PIP icon key. 5. On the number keypad press the number of the camera you want to display in the insert. Then press the CAM key. (Note: Both cameras must be connected to the same multiplexer.) 6. To change the display in the insert, press the number of the camera, then press the CAM key. 7. To exit, press the PIP icon key. 	<p>The full-size view appears on the MAIN monitor with the PIP insert.</p> <p>NOTE: <i>In order to change the camera shown on the full screen view, you must exit the PIP mode.</i></p>
<p>Zoom on a camera on the MAIN monitor.</p>	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. Select the camera. <ul style="list-style-type: none"> Addressing by Multiplexer (Switch 7 OFF) <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. Addressing Consecutively (Switch 7 ON) <p>On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. Press the LIVE/VCR key to select the mode of operation. 4. Press the key below the ZOOM icon. The zoom will be 2X. Press the key again for 4X zoom. 5. Use the pan/tilt keys to control the zoom location. 6. To exit, press the zoom icon key or the number of the camera, then press the CAM key. 	<p>Stops a sequence if one is in progress. Displays a 2X or 4X zoom of the camera selected on the MAIN monitor.</p>


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Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
<p>Run a sequence of cameras from one multiplexer on the MAIN monitor.</p>	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. Select a camera on the multiplexer that you want to sequence. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of a camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> <p>On the number keypad press the number of a camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. Press the LIVE/VCR key to select the mode of operation. 4. To sequence individual cameras, go to step 5. To sequence groups of cameras, press the key below the 4- or 9-screen icon, then go to step 5. 5. Press the SEQ key. 	<p>Starts the pre-programmed sequence of individual cameras or groups of cameras on the MAIN monitor.</p>
<p>Run a sequence of cameras from one multiplexer on the SPOT monitor. (SPOT MONITOR DISPLAY in the Advance System Setup menu must be in SEQUENCE.)</p>	<ol style="list-style-type: none"> 1. Press the SPOT MONITOR key. The green LED over the SPOT key lights. 2. Select a camera on the multiplexer that you want to sequence. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of a camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> <p>On the number keypad press the number of a camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. Press the SEQ key. 	<p>Starts the sequence of individual cameras on the SPOT monitor.</p>
<p>Stop a sequence of cameras on a multiplexer.</p>	<ol style="list-style-type: none"> 1. Press the MAIN or SPOT MONITOR key. 2. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. 3. Press the SEQ key. 	<p>Stops the sequence. The monitor displays video from the camera on which sequence stops.</p>

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
Sequence multiple cameras in one location of a 4-, 9-, or 16-camera display.	<ol style="list-style-type: none"> 1. Select the desired multi-camera display. 2. Press and hold the multi-camera display key to enter the multi-screen programming mode. A bar will appear in the first camera location. 3. Use the pan/tilt keys to move the on-screen bar to the desired camera location for sequencing, and press sequence key to initiate the sequencing of all active cameras. 	The sequence will run until the sequence key is pressed or until another camera or multi-screen display has been selected.
Sequence multiplexers connected to a server.	<ol style="list-style-type: none"> 1. Hold down the SEQ key for approximately three seconds. 	Starts sequencing the multiplexers in numerical order, displaying the main monitor first, then the spot monitor. Monitors to be displayed are selected in the Set Sequence submenu of the Monitor menu of the server. Sequencing appears on the monitor affiliated with the keyboard; for example, if the keyboard is set for address 1, the sequence will appear on monitor 1.
Sequence multiplexers connected to a server and sequence cameras on a multiplexer(s).	<ol style="list-style-type: none"> 1. Follow the steps under “Run a sequence of cameras from one multiplexer on the MAIN monitor” or “Run a sequence of cameras from one multiplexer on the SPOT monitor” to start sequencing the cameras on the main and spot monitors of individual multiplexers that you want to sequence. 2. Hold down the SEQ key for approximately three seconds to start sequencing the multiplexers. 	Starts sequencing the multiplexers in numerical order, displaying the main monitor first, then the spot monitor. Monitors to be displayed are selected in the Set Sequence submenu of the Monitor menu of the server. As each monitor is displayed, it sequences. Sequencing appears on the monitor affiliated with the keyboard; for example, if the keyboard is set for address 1, the sequence will appear on monitor 1.
Sequence the PIP display.	<ol style="list-style-type: none"> 1. Press the  key. 2. Press the SEQ key. 	Sequences all active cameras in the PIP display.
Stop a sequence of multiplexers.	Press a pan/tilt key or select any camera.	Sequence stops.
Call a camera or run a sequence of cameras on the AUX monitor (duplex multiplexer only).	Program the monitor in the Advanced System Setup menu.	Monitor responds to programming instructions.

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
Call a preset.	<ol style="list-style-type: none"> 1. Press the MAIN or SPOT MONITOR key. The green LED over the MAIN or SPOT key lights. When using the MAIN MONITOR, the SPOT MONITOR DISPLAY menu item in the Advanced System Setup menu must be set to TRACK MAIN (refer to the <i>Advanced System Setup</i> section). 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers. 3. On the number keypad press the number of the preset, then press the PRESET key. (Note: When calling preset 95 on Esprit™ or Spectra® systems, hold the PRESET key until the menu appears on the screen.) 	Moves the camera to the preset location.
Start auto scan with 15-bit receiver.	<ol style="list-style-type: none"> 1. Press the SPOT MONITOR key. The green LED over the SPOT key lights. 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers. 3. On the number keypad press 97, then press the PRESET key. 	Starts auto scanning.
Start random scan with 15-bit receiver.	With system in auto scan, press 97 on the number keypad, then press the PRESET key.	Starts random scanning.

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
<p>Start manual scan (or stop auto or random scan) with 15-bit receiver.</p>	<ol style="list-style-type: none"> 1. Press the SPOT MONITOR key. The green LED over the SPOT key lights. 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> <p>On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. On the number keypad press 96, then press the PRESET key. 	<p>Stops auto or random scanning, if operating, and activates manual scanning.</p>
<p>Begin a pattern.</p>	<ol style="list-style-type: none"> 1. Press the MAIN or SPOT MONITOR key. The green LED over the MAIN or SPOT key lights. When using the MAIN MONITOR, the SPOT MONITOR DISPLAY menu item in the Advanced System Setup menu must be set to TRACK MAIN (refer to the <i>Advanced System Setup</i> section). 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> <p>On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. On the number keypad press 1, then press the PATTERN key. 4. To stop the pattern, press a pan/tilt key. 	<p>The pattern operates until stopped.</p>

(Continued on next page)

Table B. Operation Guide (Continued)

OPERATION	KEYBOARD COMMAND	RESULT
<p>Turn an auxiliary function on or off.</p>	<ol style="list-style-type: none"> 1. Press the SPOT MONITOR key. The green LED over the SPOT key lights. 2. Select the camera. <p>Addressing by Multiplexer (Switch 7 OFF)</p> <ol style="list-style-type: none"> a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. b. On the number keypad press the number of the camera (1-16), then press the CAM key. <p>Addressing Consecutively (Switch 7 ON)</p> <p>On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.</p> 3. On the number keypad press the number of the auxiliary you want to operate, then press the AUX ON or OFF key. 	<p>The auxiliary function operates.</p>
<p>Record a tape.</p>	<p>For duplex multiplexer, recording is done automatically. For simplex multiplexer, the multiplexer must be in the record mode (DISPLAY/RECORD LED is ON).</p>	<p>Records all cameras connected to the multiplexer.</p> <p>For simplex multiplexer, while the multiplexer is in the record mode (DISPLAY/RECORD LED on ON) you can only see a full-screen view of one camera (or one camera at a time if sequencing) on the main monitor, but all active cameras are being recorded.</p>
<p>Play a tape.</p>	<ol style="list-style-type: none"> 1. Press the MAIN MONITOR key. The green LED over the MAIN key lights. 2. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address. 3. Press the LIVE/VCR key to put the multiplexer in the playback mode. 4. Select the cameras to play back from one of the following choices: <ul style="list-style-type: none"> • For an individual camera, press the number of the camera, then press the CAM key. If switch 7 is OFF, enter a camera number from 1-16. If switch 7 is ON, refer to Table C for camera numbers. • For multiple camera display, press the key below the 4, 9, or 16 icon. • For sequencing, select an individual or multiple camera display, then press the SEQ button. 5. Turn on the VCR and press the PLAY button. 	<p>Displays the recorded cameras in the selected format on the MAIN monitor.</p>

Table C. Camera Numbers with Switch 7 ON

Multiplexer	Cameras	
	9-channel	16-channel
1	1-9	1-16
2	17-25	17-32
3	33-41	33-48
4	49-57	49-64
5	65-73	65-80
6	81-89	81-96
7	97-105	97-112
8	113-121	113-128
9	129-137	129-144
10	145-153	145-160
11	161-169	161-176
12	177-185	177-192
13	193-201	193-208
14	209-217	209-224
15	225-233	225-240
16	241-249	241-256

PROGRAMMING

NOTE: Whenever a multiplexer server is installed, programming the multiplexer **must be done** at the multiplexer front panel. In this situation, the multiplexer cannot be programmed from the +keyboard. The keyboard can **only** be used to program the multiplexer server, **not** the multiplexer.

This section applies only to programming the multiplexer. To program the multiplexer server, refer to the server manual.

Programming allows you to configure the multiplexer from the KBD4002 for the way that you want your system to operate. The multiplexer automatically selects the most common operating parameters. However, some minimal programming may be required to make your system work.

Programming of system, camera, and VCR setup; camera sequencing; and alarm and activity detection are done through on-screen menus that are displayed on the main monitor. A password can be enabled to prevent unauthorized access to the menus.

Programming of the picture-in-picture, and 4-, 9-, and 16-camera displays can be done directly without going through menus.

IMPORTANT NOTE

Before the keyboard can be used to control the multiplexer(s), perform the following steps at the multiplexer(s) front panel.

1. Press the VIEW button for approximately three seconds. The basic SYSTEM Setup menu appears.
2. The currently selected menu item blinks. Use the arrow buttons to highlight ADVANCED SETUP.
3. Press the +/- button. The Advanced System Setup menu appears. Skip steps 4 and 5 if your system has only one multiplexer.
4. Use the arrow buttons to move the cursor to UNIT ID.
5. Press the +/- button to select the UNIT ID of the multiplexer.
6. Use the arrow button to move the cursor to COMM.TYPE.
7. In the polled communication mode (switch 4 OFF), one multiplexer must be the master and all others slaves. In the non-polled mode (switch 4 ON), all multiplexers must be slaves.
8. Use the arrow button to go to EXIT. Press the +/- button to exit the menu. The keyboard can now be used to program the multiplexer(s).

PASSWORD

You can program the multiplexer to request a password for access to programming menus. The password is enabled in the Advanced System Setup menu (refer to the *Advanced System Setup* section).

The universal password is 3916 and cannot be changed. This password must be entered whenever one is requested. The password is entered from the keyboard by pressing each number followed by pressing the CAM key: 3, CAM, 9, CAM, 1, CAM, 6, CAM.

MENUS

TIP: Once you are in a menu, you can go to another menu by pressing the key(s) for that menu. Press and release the VIEW key to switch to the system setup menu. Enter a camera number and then press and release the CAM key to change to a camera menu. Press and hold the SEQ and LIVE/VCR keys to switch to the sequence and record menus.

TIP: In any menu you can scroll the options forward by pressing the OPEN key or scroll backward by pressing the CLOSE key.

To program from the keyboard you have to be in main monitor mode. Press the MAIN MONITOR key.

SYSTEM SETUP (View Key)

To program the main basic system parameters:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the VIEW key for approximately three seconds. Type the password, if requested. The password must be entered by pressing each number key followed by pressing the CAM key. The System Setup menu appears. The currently selected menu item blinks.
4. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), do one of the following:
 - If a menu item has more than one option, press the OPEN key to cycle through the options to select the one you want.
 - If a menu item has only one option, press the OPEN key to select it.

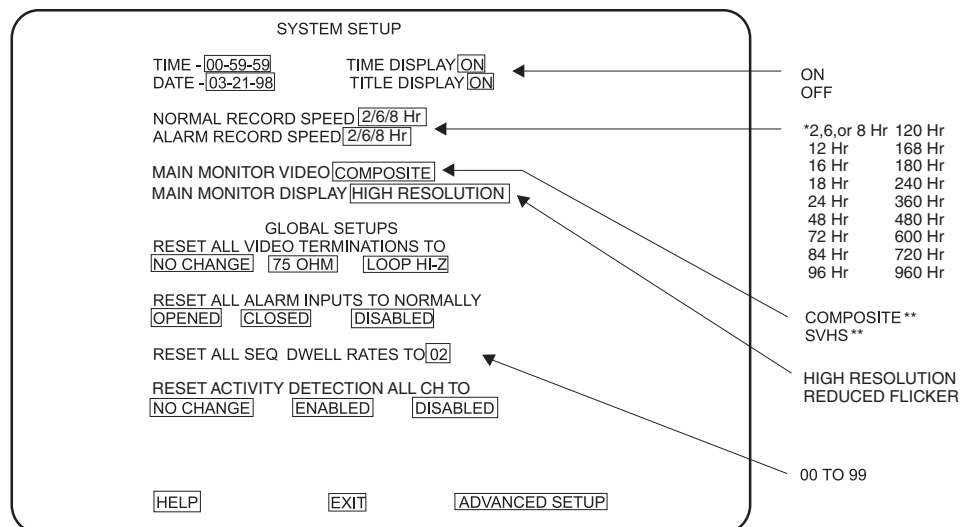
Time and Date

Set the current time and date. The time uses a 24-hour clock.

Time Display

ON - Displays the time on the main monitor.

OFF - The time is not shown on the main monitor.



* 2/6/8 HR FOR NTSC/EIA MODEL MULTIPLEXERS, 3 HR FOR PAL/CCIR MODELS. REMAINING RECORD SPEEDS DEPEND UPON VCR MODEL.
 ** NOT SHOWN ON DUPLEX MONOCHROME MODELS OR SIMPLEX MULTIPLEXERS

Figure 3. Basic System Setup Menu

NOTE: *Title Display shows a maximum of 12 characters in all modes except 16-camera display, in which only 9 characters are shown.*

Title Display (Duplex Multiplexer)

ON - Displays camera titles and the word LIVE or VCR on the main monitor.
OFF - Camera titles and the word LIVE or VCR are not shown on the main monitor.

Title Display (Simplex Multiplexer)

ON - Displays camera titles on the main monitor.
OFF - Camera titles are not shown on the main monitor.

Record Speeds

Sets the speed at which the VCR normally records video and the speed at which it records when there is an alarm(s). Setting the speeds in the System Setup menu also sets the speeds in the Record Setup and Custom VCR Setup menus.

Main Monitor Video (Duplex Multiplexer Color Models Only)

Composite is standard video on coaxial cable. SVHS is higher resolution video on a special cable.

Main Monitor Display

The options are High Resolution or Reduced Flicker. Reduced Flicker can be selected when there is flickering on the monitor screen, such as from a neon light. This problem is more visible to the eye in PAL format multiplexers.

GLOBAL SETUPS

Video Terminations

These settings set the terminations for **all** video inputs. To set individual inputs, refer to the *Camera Setup* section.

Set to 75 OHM when equipment is connected **only** to the video IN connectors. There must be no equipment connected to the video OUT connectors.

Set to LOOP HI-Z when equipment is connected to the video OUT (looping) connectors. For every channel that has equipment connected to the video IN connector, there **must** be equipment connected to the video OUT connector. **Do not** use this global setting if any channel has equipment connected to a video input but **no** equipment connected to the video output. Equipment connected to the looping connectors must be terminated at 75 ohms.

NO CHANGE - This is a pass-through selection in case you unintentionally hit the OPEN key. This is not an undo key.

Alarm Inputs

Normally closed operation = current flow = alarm switch or relay closed.
Normally open operation = no current flow = alarm switch or relay open.

Dwell Rates

Sets the sequence dwell rate for **all** cameras. To set individual dwell rates for cameras, refer to the *Sequence Setup* section.

Activity Detection

ENABLED/DISABLED - Turns activity detection on or off for **all** video inputs. To set individual inputs, refer to the *Camera Setup* section.

NO CHANGE - This is a pass-through selection in case you unintentionally hit the OPEN key. This is not an undo key.

5. When you have completed all the changes you want to make, go to EXIT or ADVANCED SETUP.
6. Press the OPEN key to exit the programming mode or to go to the advanced system setup menu.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.

ADVANCED SYSTEM SETUP (View Key)

To program the advanced main system parameters:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the VIEW key for approximately three seconds. The basic System Setup menu appears.
4. The currently selected menu item blinks. Use the pan/tilt keys to highlight ADVANCED SETUP.
5. Press the OPEN key. The Advanced System Setup menu appears.
6. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), press the OPEN key to cycle through the options.

Date Format

Sets the format for displaying the date on the main monitor.

Password

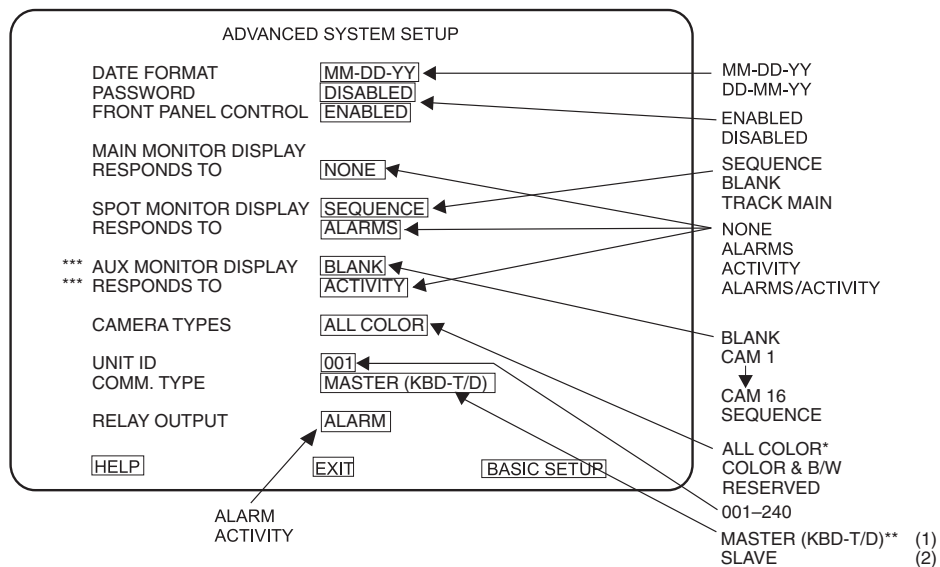
Enables or disables password control to access programming menus.

Front Panel Control

Enables or disables the front panel buttons to operate the multiplexer. In either mode you can access programming menus. Has no effect on the keyboard.

Main Monitor Display

Select ALARMS, ACTIVITY, or ALARMS/ACTIVITY if you want the main monitor to switch to cameras that have alarms or activity detection. If you are using the main monitor for normal video and you do not want alarms or activity detection to override what you are observing, select NONE.



* ALL B/W SHOWN ON MONOCHROME MODELS.

** MUST BE SET IN THIS MODE FROM THE FRONT PANEL OF THE MULTIPLEXER TO PROGRAM THE MULTIPLEXER FROM THE KEYBOARD.

*** DUPLEX MULTIPLEXER ONLY; NOT ON SIMPLEX

(1) SIMPLEX DEFAULT SETTING
(2) DUPLEX DEFAULT SETTING

Figure 4. Advanced System Setup Menu



CAUTION: When programming the MX4000

Multiplexer from the KBD4002 Keyboard, **DO NOT ATTEMPT TO CHANGE THE UNIT ID.** Changing the unit ID from the keyboard will interrupt the keyboard communications to the multiplexer, resulting in erratic multiplexer operation. Refer to the Troubleshooting section, in this manual to correct the situation.

Spot Monitor Display

If you want the spot monitor to switch to cameras that have alarms or activity detection, select BLANK, SEQUENCE, or TRACK MAIN, then under RESPONDS TO select ALARMS, ACTIVITY, or ALARMS/ACTIVITY. If you are using the spot monitor for normal video and you do not want alarms or activity detection to override what you are observing, select NONE.

BLANK - Allows you to view an individual camera, but you cannot run a sequence. An alarm or activity detection will override the camera you are viewing. When the alarm or activity detection goes away, the screen will return to the camera you were viewing.

SEQUENCE - Allows you to view an individual camera or run a sequence. An alarm or activity detection will override what you are observing. When the alarm or activity detection goes away, the screen will return to the camera or sequence you were viewing.

TRACK MAIN - The spot monitor will follow the camera switching that occurs on the main monitor. This feature is used only when a KBD4002 keyboard is connected to the multiplexer for controlling moveable cameras. This mode provides an easy method of simplifying P/T/Z control in single-monitor applications. The operator does not have to switch to SPOT to gain P/T/Z control and there is no separate control of the spot monitor when in this mode. However, to do presets and patterns, switch to SPOT.

Aux Monitor Display (Duplex Multiplexer Only)

Select ALARMS, ACTIVITY, or ALARMS OR ACTIVITY if you want the auxiliary monitor to show cameras with alarms or activity detection. If you are using the auxiliary monitor to sequence all cameras and you do not want alarms or activity detection to override the sequence, select NONE.

BLANK - This means the screen will remain blank unless there is an alarm or activity detection.

SEQUENCE - This means the monitor will sequence all cameras unless there is an alarm or activity detection.

CAM 1 through CAM 16 - This means the monitor will display the selected camera unless there is an alarm or activity detection.

Camera Types

The COLOR & B/W setting allows the multiplexer to adapt to the combination of both color and monochrome video signals. The switching speed of the multiplexer is not as fast when it has to change formats between monochrome and color cameras. For **duplex** monochrome models, you will not receive color from a color camera except on the SPOT or AUX monitor displays. For **simplex** monochrome models, you will not receive color from a color camera except in RECORD mode.

The RESERVED setting can improve performance when using cameras with non-standard sync or poor video quality.

Unit ID

This is the address of the multiplexer. If your system has more than one multiplexer, each multiplexer must have its own address. This must be set at the multiplexer, not at the keyboard.

Comm.Type

In the **polled** communication mode (switch 4 OFF), one multiplexer (any one) must be the master. Only one multiplexer can be the master. All other multiplexers must be slaves. The master multiplexer communicates with the slave multiplexers.

In the **non-polled** communication mode (switch 4 ON), all multiplexers must be slaves.

The default is SLAVE for duplex multiplexers and MASTER (KBD T/D) for simplex multiplexers.

Relay Output

Operates the relay on the back of the multiplexer. The relay is used to change the VCR to its alarm recording speed. In the alarms mode, an alarm signal is produced when a remote switch opens or closes a ground in the multiplexer; for example, if a switch is on a door and the door is opened. In the activity mode, the multiplexer continually monitors select camera inputs for motion. When motion is detected, the multiplexer increases the frequency with which that camera(s) is shown and recorded. Activity detection is most effective when only a few cameras are showing activity (refer to the *Camera Setup* section).

7. When you have completed all the changes you want to make, go to EXIT or BASIC SETUP.
8. Press the OPEN key to exit the programming mode or to go to the basic system setup menu.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.

RECORD SETUP (Live/VCR Key)

To program the VCR recording parameters:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the LIVE/VCR key for approximately three seconds. Type the password, if requested. The Record Setup menu appears. The currently selected menu item blinks.
4. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), press the OPEN key to cycle through the options to select the one you want.

Record Speeds

Sets the speed at which the VCR normally records video and the speed at which it records when there is an alarm(s). Setting the speeds in the Record Setup menu also sets the speeds in the System Setup and Custom VCR Setup menus.

VCR Type (See Table D)

If your VCR is not listed among the options, do either of the following:

- Select UNIVERSAL. In the recording speed menu item at the top of the screen, select an option that your VCR will support.
- Select CUSTOM. Then go to CONFIGURE CUSTOM VCR and press the OPEN key to go to the Custom VCR Setup menu. The switch interval can be changed only while in this setting.

VCR Video Format

This feature is not available on monochrome multiplexers. Composite is standard video on a coaxial cable. SVHS is higher resolution video on a special cable.

VCR Switch Pulse

ENABLED means the multiplexer waits for a head switching pulse from the VCR. If the multiplexer does not get a pulse from the VCR (because of a broken wire or the VCR does not give a pulse in some modes), it may appear that the multiplexer is not working properly.

DISABLED means the VCR head switching pulse is not used.

Alarm Handling

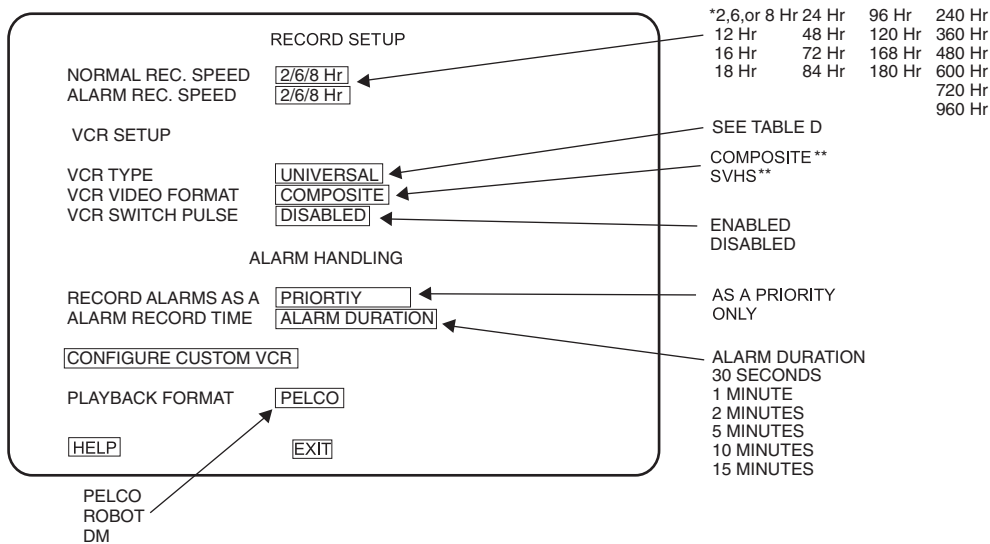
Determines how alarms are recorded and for how long.

Configure Custom VCR

Press the OPEN key to get to the CUSTOM VCR SETUP menu.

Playback Format

Tapes made using Pelco, Robot, and DM multiplexers can be played.



* 2/6/8 HR FOR NTSC/EIA MODEL MULTIPLEXERS, 3 HOUR FOR PAL/CCIR MODELS.
 REMAINING RECORD SPEEDS DEPEND UPON VCR MODEL.
 ** NOT SHOWN ON MONOCHROME MODELS.

Figure 5. Basic VCR Setting Menu

Table D. VCR Types

NTSC	PAL
UNIVERSAL	UNIVERSAL
GYR TLC1800	ASUTA TLVCR 251
GYR 2100	ASUTSA TLVCR 964
GYR 2100 HD MODE	BURLE TC3910X
JVC SR-L900U	HITACHI VTL30E
JVC SR-L901U	HITACHI VT-L1000E
JVC SR-9070U	HITACHI VT-L2000E
JVC BR-S925U	JVC BR9060E
mitsubishi HS7424U	JVC BR-S920/925
mitsubishi HS7496U	JVC SR-L900E
mitsubishi HS5168U	MITS. HS5300/5600
MITS. HS7168U NORM	MITS. HS5424E
MITS. HS7168U HD	PANAS. AG6024/6124
PANASONIC AG-RT600	PANASONIC AG6720
PANASONIC AG6124	PANASONIC AG6730
PANASONIC AG 6730	PANASONIC AG6040
PELCO TLR2024	SANYO TLS900P
PELCO TLR2096	SANYO TLS1000
PELCO TLR2168 NORM	SANYO SRT-500P
PELCO TLR2168HD	SANYO TLS2000
SANYO SRT600	SONY SVT100P
SANYO TLS924/972	SONY SVT5000P
SANYO TLS2500/7000	CUSTOM
TOSHIBA KV6300	
TOSHIBA KV7024A	
TOSHIBA KV7168A	
TOSHIBA KV7960A	
TOSHIBA KV8168A	
CUSTOM	

NOTE: For proper recording, the switching rate of the multiplexer must match that of the VCR. If they do not match, the VCR may skip frames or record duplicate frames.

5. When you have completed all the changes you want to make, go to EXIT.
6. Press the OPEN key to exit the programming mode.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.

CUSTOM VCR SETUP (Live/VCR Key)

To program the advanced VCR parameters:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the LIVE/VCR key for approximately three seconds. The Record Setup menu appears. The currently selected menu item blinks.
4. Make sure the VCR Type in the Record Setup menu is set to CUSTOM.
5. Use the pan/tilt keys to highlight CONFIGURE CUSTOM VCR.
6. Press the OPEN key. The Custom VCR Setup menu appears.
7. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), press the OPEN key to cycle through the options.

Record Speeds

Sets the speed at which the VCR normally records video and the speed at which it records when there is an alarm(s).

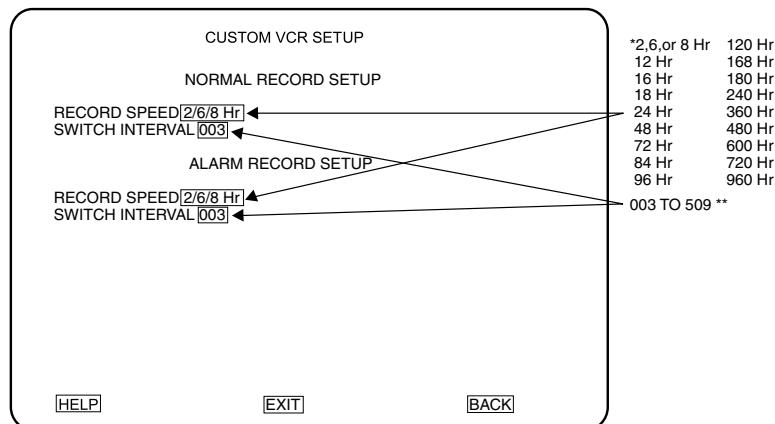
Setting the speeds in the Custom VCR Setup menu also sets the speeds in the System Setup and Record Setup menus.

Interval

Interval is the number of fields recorded by the VCR before switching to the next camera.

8. When you have completed all the changes you want to make, go to EXIT or BACK.
9. Press the OPEN key to exit the programming mode or to return to the Record Setup menu.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.



* 2/6/8 HR FOR NTSC/EIA MODEL MULTIPLEXERS, 3 HR FOR PAL/CCIR MODELS.
 REMAINING RECORD SPEEDS DEPEND UPON VCR MODEL.
 ** VCR TYPE IN RECORD SETUP MENU MUST BE SET TO CUSTOM IN ORDER TO MAKE SELECTIONS.

Figure 6. Custom VCR Setup Menu

CAMERA SETUP (Number and CAM Keys)

To program a camera input:

1. Press the MAIN MONITOR key.
2. Select the camera.

Addressing by Multiplexer (Switch 7 OFF)

- a. On the number keypad, enter the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
- b. On the number keypad, enter the number of the camera, then press and hold the CAM key until the Camera menu appears.

Addressing Consecutively (Switch 7 ON)

On the number keypad, enter the number of the camera, then press and hold the CAM key until the Camera menu appears. Refer to Table C for camera numbers.

3. A video insert appears that shows what the camera is viewing. This is useful to make sure you have selected the correct camera and to see what effect there is on the video when you select a menu option. The currently selected menu item blinks.
4. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), press the OPEN key to cycle through the options to select the one you want. Use the right pan key to advance to the next character position when titling a camera.

Video Termination

Set to 75 OHM when equipment is connected only to the video IN connector.

Set to LOOP HI-Z when equipment is also connected to the video OUT (looping) connector. Equipment connected to the looping connector must be terminated at 75 ohms.

Alarm Input

Normally closed operation = current flow = alarm switch or relay closed.

Normally open operation = no current flow = alarm switch or relay open.

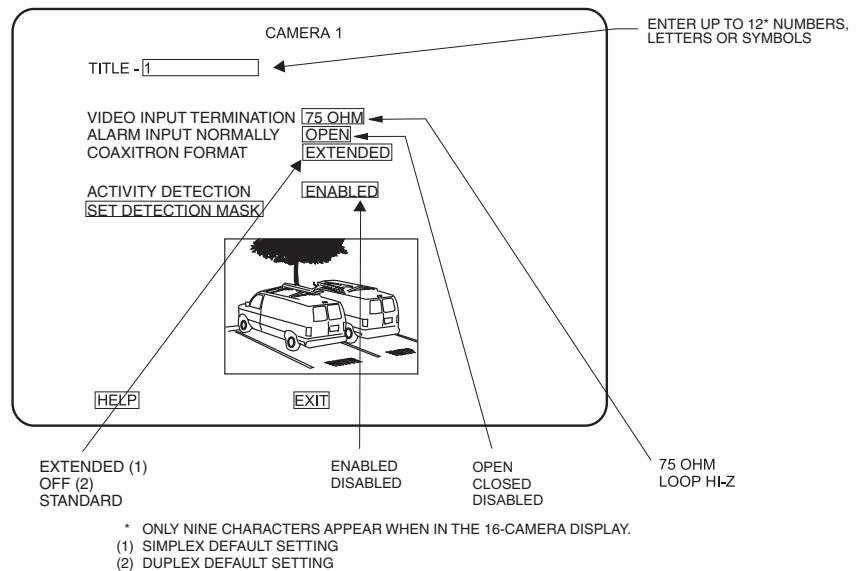


Figure 7. Basic Camera Menu

NOTE: *The Coaxitron format default setting is OFF for the duplex multiplexer and EXTENDED for the simplex multiplexer.*

Coaxitron Format

EXTENDED - Use when your system has moveable cameras controlled by 32-bit Coaxitron receivers, such as Esprit, Intercept, Spectra, and LRD41C21/LRD41C22 Series.

OFF - Use when your system has fixed cameras only.

STANDARD - Use when your system has moveable cameras controlled by 15-bit Coaxitron receivers, such as the CX9000 Series, the PT7700, and the ED25/27/28/29.

Activity Detection

A camera can be set to respond or not to respond to motion. If enabled select SET DETECTION MASK to define what part of the camera's viewing field will be monitored for motion.

5. To program another camera, press the number key for that camera then press the CAM key. Repeat steps 2-4.
6. When you have completed all the changes you want to make, go to EXIT.
7. Press the OPEN key to exit the programming mode.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.

ACTIVITY DETECTION MASK SETUP

Activity detection continually monitors selected camera inputs for motion. When motion is detected, the multiplexer increases the frequency with which that camera(s) is shown and recorded. Activity detection is most effective when only a few cameras are showing activity. As the number of cameras with activity increases, the slower the frequency at which they can be shown and recorded. If all 16 cameras show activity, there will be virtually no increase.

The activity detection mask selects that portion or portions of the camera's field of view that the multiplexer will monitor for motion. The entire grid is active on default.

To program an activity detection mask for a camera:

1. Press the MAIN MONITOR key.
2. Select the camera.

Addressing by Multiplexer (Switch 7 OFF)

- a. On the number keypad, enter the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
- b. On the number keypad, enter the number of the camera, then press and hold the CAM key until the Camera menu appears.

Addressing Consecutively (Switch 7 ON)

On the number keypad, enter the number of the camera, then press and hold the CAM key until the Camera menu appears. Refer to Table C for camera numbers.

3. The currently selected menu item blinks. Use the pan/tilt keys to highlight SET DETECTION MASK.
4. Press the OPEN key. The Activity Detection Mask appears. The currently selected menu item or activity box blinks.
5. Use the pan/tilt keys to move between menu items and activity boxes on the screen.
6. Highlight the sensitivity menu item. Press the OPEN key to select the sensitivity. The higher the sensitivity is, the less the amount of motion that will be needed to detect activity.

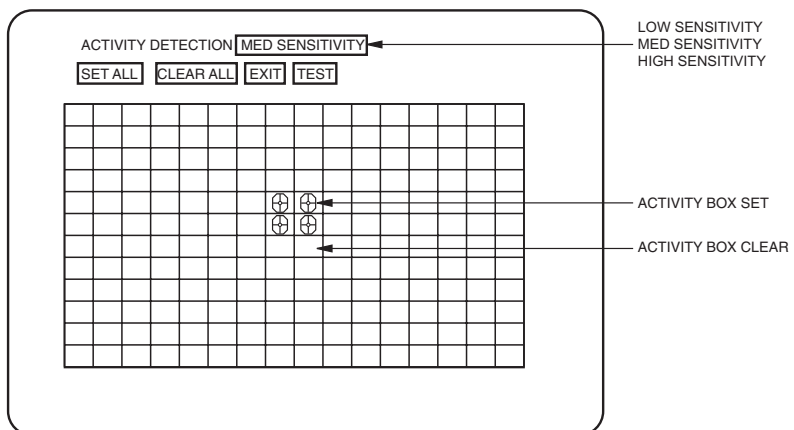


Figure 8. Activity Detection Mask

7. Turn activity boxes on or off (by default, all activity boxes are on).

To turn on all activity boxes, use the pan/tilt keys to choose SET ALL. Press the OPEN key. All boxes will contain a symbol as shown in Figure 8. The multiplexer will monitor motion in those boxes.

To turn off all activity boxes, use the pan/tilt keys to choose CLEAR ALL. Press the OPEN key. All boxes will be blank.

To turn on or off an individual box, use the pan/tilt keys to select the box. Press OPEN key to toggle a box on or off.

Turn off activity boxes where you want motion ignored, such as blowing trees, highways, computer monitors, fluorescent lighting, and non-problem areas. An example of a non-problem area would be a camera focused on a bank vault entrance but ignoring tellers working nearby.

8. To test the activity detection, highlight TEST and press the OPEN key.

Create motion in front of the camera. Small black and white dashes will flash where motion is detected.

To exit the test mode, press the OPEN key to return to the mask.

9. If you did not like what you saw in the test mode, change the mask and test the activity detection again.
10. When you finish defining the activity detection mask, go to EXIT. Press the OPEN or CLOSE key to exit the programming mode.
11. If necessary, repeat steps 1-10 to program the activity detection mask for other cameras.

SEQUENCE SETUP (SEQ Key)

Sequencing can be programmed in full screen, four-camera and nine-camera displays. The cameras will not sequence when operating the zoom function. The LED(s) above the camera button(s) on the multiplexer will illuminate to indicate which camera(s) is being displayed.

To program camera sequencing:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the SEQ key for approximately three seconds. Type the password, if requested. The Sequence menu appears. The currently selected menu item blinks.
4. Use the pan/tilt keys to move between items on the screen. When the menu item you desire is highlighted (blinking), press the OPEN key to cycle through the options to select the one you want.
5. When you have completed all the changes you want to make, go to EXIT.
6. Press the OPEN key to exit the programming mode.

When HELP is highlighted, you may press the OPEN key to display a help screen that will tell you which keys to press to configure specific options.

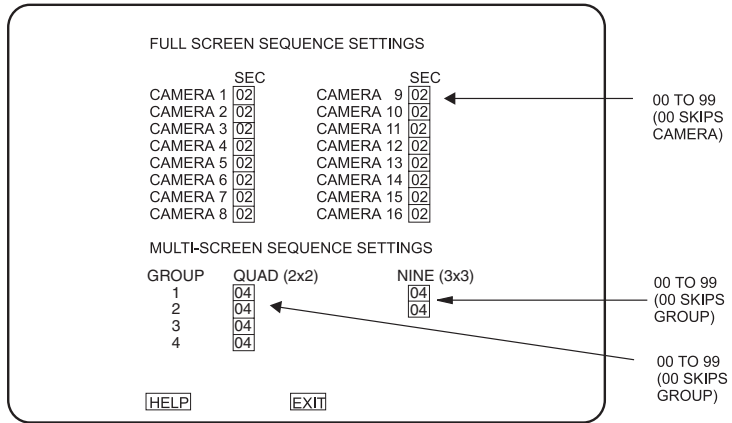
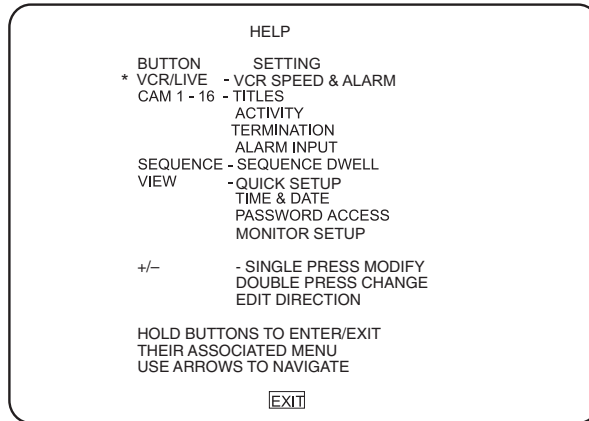


Figure 9. Camera Sequence Menu

HELP MENU

The Help menu is accessed from any other menu.

1. Use the pan/tilt keys in any menu to highlight HELP.
2. Press the OPEN key. The Help menu appears.



* SIMPLEX MULTIPLEXERS SHOW "DISP/REC".
PRESS THE "LIVE/VCR" KEY ON THE KEYBOARD.

Figure 10. Help Menu

MULTIPLE CAMERA DISPLAY SETUP





The multiple camera display formats may be configured using the keyboard. The LEDs above the camera buttons on the multiplexer will illuminate to indicate which cameras are being displayed.

PROGRAMMING THE PICTURE-IN-PICTURE DISPLAY


(Key)

The on-screen location and size of the picture-in-picture (PIP) display are programmable. PIP is not available in **duplex** VCR playback or in **simplex** RECORD mode.




To program the PIP display:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the  key.
4. Press the  key for approximately three seconds until the message PROGRAM PIP SIZE appears.
5. Use the pan/tilt keys to increase or decrease the PIP display size.
6. Press the  key for approximately three seconds until the message PROGRAM PIP POSITION appears.
7. Use the pan/tilt keys to move the PIP display location.
8. Press and hold the  key to exit the PIP programming menu.

PROGRAMMING THE 4-CAMERA DISPLAY (Key)

You can program four groups of four cameras each. Each of the four groups can be programmed to include any four cameras.  is not available in **simplex** RECORD mode.

To program the four-camera displays:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the  key to call up a four-camera display. If necessary, press the  key again to advance to the four-camera group that you wish to configure.
4. Press the  key for approximately three seconds. A bar will appear in the first camera location of the four-camera display, indicating that you are in the programming mode.
5. Use the pan/tilt keys to move to each camera location in the four-camera display.
6. When the camera location that you desire is highlighted, choose the new camera by pressing the number key for the desired camera and then pressing the CAM key.
7. To exit the programming mode, use the pan/tilt keys to move the bar off the screen.
8. If necessary, repeat steps 1-5 to program another group.

PROGRAMMING THE 9-CAMERA DISPLAY (3x3 Key)

You can program two groups of nine cameras each. Both groups can be programmed to include any nine cameras. 3x3 is not available in **simplex** RECORD mode.

To program the nine-camera displays:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the 3x3 key to call up a nine-camera display. If necessary, press the 3x3 key again to advance to the other nine-camera group.
4. Press the 3x3 key for approximately three seconds. A bar will appear in the first camera location of the nine-camera display, indicating that you are in the programming mode.
5. Use the pan/tilt keys to move to each camera location in the nine-camera display.
6. When the camera location that you desire is highlighted, choose the new camera by pressing the number key for the desired camera and then pressing the CAM key.
7. To exit the programming mode, use the pan/tilt keys to move the bar off the screen.
8. If necessary, repeat steps 1-5 to program the second group.

PROGRAMMING THE 16-CAMERA DISPLAY (4x4 Key)

4x4 is not available in **simplex** RECORD mode.

To program the 16-camera display:

1. Press the MAIN MONITOR key.
2. Use the number keypad to enter the address of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key.
3. Press the 4x4 key to call up the 16-camera display.
4. Press the 4x4 key for approximately three seconds. A bar will appear in the first camera location of the 16-camera display, indicating that you are in the programming mode.
5. Use the pan/tilt keys to move to each camera location in the 16-camera display.
6. When the camera location that you desire is highlighted, choose the new camera by pressing the number key for the desired camera and then pressing the CAM key.
7. To exit the programming mode, use the pan/tilt keys to move the bar off the screen.

PROGRAMMING MENU DEFAULTS

Table E. Programming Menu Defaults

Menu	Item	Default
System Setup	Time Display Title Display Normal Record Speed Alarm Record Speed Main Monitor Video (Duplex Only) Main Monitor Display Reset All Video Terminations To Reset All Alarm Inputs to Normally Reset All Seq Dwell Rates To Reset Activity Detection All Ch To	On On 2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) 2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) Composite High Resolution 75 Ohm Opened 02 Enabled
Advanced System Setup	Date Format Password System Password Front Panel Control Main Monitor Display Responds To Spot Monitor Display Responds To Aux Monitor Display (Duplex Only) Responds To (Duplex Only) Camera Types Unit ID Comm. Type Relay Output	MM-DD-YY (NTSC/EIA) DD-MM-YY (PAL/CCIR) Disabled 3916 Enabled None Sequence Alarms Blank Activity All Color (All B/W for monochrome) 001 Master (KBD-T/D) (Simplex) Slave (Duplex) Alarm
Record Setup	Normal Rec. Speed Alarm Rec. Speed VCR Type VCR Video Format VCR Switch Pulse Record Alarms Alarm Record Time Playback Format	2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) 2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) Universal Composite Disabled As A Priority Alarm Duration Pelco
Custom VCR Setup	Normal Record Speed Normal Switch Interval Alarm Record Speed Alarm Switch Speed	2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) 003 2/6/8 Hr (NTSC/EIA) 3 Hr (PAL/CCIR) 003
Camera	Title Video Input Termination Alarm Input Normally Coaxitron® Format Activity Detection	Camera Number 75 Ohm Open Extended (Simplex) Off (Duplex) Enabled
Activity Detection	Sensitivity Activity Boxes	Med Set All
Sequence	Individual Camera Dwell Time Quad (2x2) Dwell Time Nine (3x3) Dwell Time	02 04 04

PROGRAMMING A PRESET

NOTE: The LEDs above the camera buttons on the multiplexer will illuminate to indicate which cameras are being displayed.

1. Press the MAIN or SPOT MONITOR key. The green LED over the MAIN or SPOT key lights. When using the MAIN MONITOR, the SPOT MONITOR DISPLAY menu item in the Advanced System Setup menu **must be** set to TRACK MAIN (refer to the *Advanced System Setup* section).

2. Select the camera.

Addressing by Multiplexer (Switch 7 OFF)

- a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address.
- b. On the number keypad press the number of the camera (1-16), then press the CAM key.

Addressing Consecutively (Switch 7 ON)

On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.

3. Position the camera using the pan/tilt and lens keys.
4. On the number keypad press the number of the preset, then hold down the PRESET key for five seconds.

PROGRAMMING A PATTERN

NOTE: Refer to your dome or pan and tilt system manual for information on the number of available patterns and pattern durations.

1. Press the MAIN or SPOT MONITOR key. The green LED over the MAIN or SPOT key lights. When using the MAIN MONITOR, the SPOT MONITOR DISPLAY menu item in the Advanced System Setup menu **must be** set to TRACK MAIN (refer to the *Advanced System Setup* section).

2. Select the camera.

Addressing by Multiplexer (Switch 7 OFF)

- a. On the number pad, press the address number of the multiplexer (1-16 if the keyboard is connected to a multiplexer; 1-8 if the keyboard is connected to a server), then press the UNIT key. The LED displays the address.
- b. On the number keypad press the number of the camera (1-16), then press the CAM key.

Addressing Consecutively (Switch 7 ON)

On the number keypad press the number of the camera, then press the CAM key. Refer to Table C for camera numbers.

3. On the number pad, press a number key for the pattern number. Example: If you are programming pattern 1 press the number 1 key. Then hold down the PATTERN key until the message PROGRAMMING PATTERN appears on the screen.
4. Move the camera through the pattern using the pan/tilt and lens keys.
5. To stop programming the pattern, repress the number key for the pattern followed by the PATTERN key. Example: Press number 1 and then the PATTERN key if you are programming pattern 1. The message PROGRAMMING PATTERN disappears.

TROUBLESHOOTING

If you have difficulty operating your system, run through the following checklist to see if you can solve the problem.

1. Are the keyboard switches set properly?
2. Is the equipment wired properly?
3. Are the menu options in the multiplexer(s) and server set properly?
4. Has the multiplexer been set to the correct mode for live video or tape playback?
5. Only the main monitor displays multiple screen images. The spot monitor displays full screen views only.
6. Patterns, presets, and auxiliaries will work in both MAIN and SPOT MONITOR. When using the MAIN MONITOR, the SPOT MONITOR DISPLAY menu item in the Advanced System Setup menu must be set to TRACK MAIN.
7. The auxiliary monitor (duplex multiplexer only) is controlled by programming. You cannot control it from the keyboard or from the front panel of the multiplexer.
8. Tape playback can be done only on the main monitor (in VCR mode).
9. Moveable cameras must be Coaxitron compatible and the proper Coaxitron format selected in the Camera menu of the multiplexer. If the proper format is not selected, the camera will either not move or have sluggish control.
10. Moveable cameras can be operated with the pan/tilt keys only if SPOT MONITOR is chosen or if the spot monitor is programmed to track the main monitor. The camera will move on the main monitor if the same camera is being shown on both the main and spot monitors.
11. The position of switch 7 on the keyboard determines how you call cameras. If the switch is ON, all cameras are addressed consecutively. Do not count just the cameras installed. Count 16 camera inputs per multiplexer, even if a multiplexer has only 9 inputs. The first input of multiplexer 1 is always camera 1, the first input of multiplexer 2 is always camera 17, the second input of multiplexer 3 is always camera 34.

If the switch is OFF, cameras are addressed in groups of 9 or 16 according to the address of the multiplexer. Select a multiplexer (for example, number 3), then choose a camera (1-9 or 1-16).
12. In the polled communication mode (switch 4 OFF), if you have one multiplexer, it must be the master. If you have more than one multiplexer, one of them (any one) must be the master and all the others slaves. In the non-polled mode (switch 4 ON), all multiplexers must be slaves. Refer to the Advanced System Setup menu of the multiplexer.
13. If you have more than one multiplexer, they must have different addresses (Advanced System Setup menu of multiplexer).
14. If you have a server, the address of the multiplexer must correspond to the input it is connected to on the server. For example, if the multiplexer goes to input 4 on the server, the multiplexer must be address 4.
15. If you have a server, each keyboard must have its own address.
16. If you have a server, each keyboard controls its corresponding monitor(s). In the SINGLE mode, keyboard 1 controls monitor 1, keyboard 2 controls monitor 2, etc. In the PAIRED mode, keyboard 1 controls monitor 1 (main) and monitor 2 (spot), and keyboard 3 controls monitor 3 (main) and monitor 4 (spot). In the paired mode, keyboards 2 and 4 are not used.
17. If you have a server and cannot change between full screen and multiple screen views on the main monitor, check the MAIN MONITOR CONTROL setting in the Monitor menu of the server.

18. If the UNIT ID, in the ADVANCED SYSTEM SETUP menu, is inadvertently changed at the keyboard resulting in an uncontrollable sequencing of unit ID numbers and loss of keyboard control:
 - a. Go to the multiplexer and press the down arrow button. The sequencing should stop. Exit the menu, then return to the ADVANCED SYSTEM SETUP menu and change the UNIT ID back to 001. Continue normal programming from the keyboard.

OR

 - b. If the multiplexer is remotely located away from the keyboard, wait until the numbers sequence to the correct multiplexer unit ID number and **immediately** press any pan/tilt key. The sequencing should stop. Continue normal programming from the keyboard.

SPECIFICATIONS

ELECTRICAL

Input Voltage: 12 VAC or ± 12 VDC

Power Consumption: 5 watts

KEYBOARD COMMUNICATION

Keyboard Interface: RS-485 (25-foot flat cable supplied)

Connector Type: RJ-45 8-pin modular (female)

MECHANICAL

Keyboard Keypad: Mechanical

Digital Display: Two red seven-segment LEDs

Main/Spot
Monitor Indicators: Two green LEDs

GENERAL

Ambient Operating
Temperature: 20° to 120°F (-7° to 49°C)

Humidity: 10% - 90% non-condensing

Dimensions: 8.125 (W) x 7.125 (L) x 2.25 (H) inches (20.64 x 18.10 x 5.72 cm)

Weight: 2.1 lb (0.97 kg)

Shipping Weight: 3 lb (1.35 kg)

Design and product specifications subject to change without notice.

PRODUCT WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years on FT/FR8000 Series fiber optic products.
- Three years on Genex® Series products (multiplexers, server, and keyboard).
- Three years on Camclosure® and fixed camera models, except the CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models, which have a five-year warranty.
- Two years on standard motorized or fixed focal length lenses.
- Two years on Legacy®, CM6700/CM6800/CM9700 Series matrix, and DF5/DF8 Series fixed dome products.
- Two years on Spectra®, Esprit®, ExSite™, and PS20 scanners, including when used in continuous motion applications.
- Two years on Esprit® and WW5700 Series window wiper (excluding wiper blades).
- Eighteen months on DX Series digital video recorders, NVR300 Series network video recorders, and Endura™ Series distributed network-based video products.
- One year (except video heads) on video cassette recorders (VCRs). Video heads will be covered for a period of six months.
- Six months on all pan and tilts, scanners or preset lenses used in continuous motion applications (that is, preset scan, tour and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to Pelco, Clovis, California. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental or consequential damages (including loss of use, loss of profit and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, Sales Order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product which does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

In order to expedite parts returned to the factory for repair or credit, please call the factory at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair).

All merchandise returned for credit may be subject to a 20% restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid. Ship to the appropriate address below.

If you are located within the continental U.S., Alaska, Hawaii or Puerto Rico, send goods to:

Service Department
Pelco
3500 Pelco Way
Clovis, CA 93612-5699

If you are located outside the continental U.S., Alaska, Hawaii or Puerto Rico and are instructed to return goods to the USA, you may do one of the following:

If the goods are to be sent by a COURIER SERVICE, send the goods to:

Pelco
3500 Pelco Way
Clovis, CA 93612-5699 USA

If the goods are to be sent by a FREIGHT FORWARDER, send the goods to:

Pelco c/o Expeditors
473 Eccles Avenue
South San Francisco, CA 94080 USA
Phone: 650-737-1700
Fax: 650-737-0933

REVISION HISTORY

Manual #	Date	Comments
C581M	8/99	Original version.
C581M-A	9/03	Added Regulatory Notices section and changed power specification.
C581M-B	1/04	Revised per ECO #03-9291, software upgrade to increase the number of programmable patterns.



This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local dealer for procedures for recycling this equipment.



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